

The financial burden of out-of-pocket patient payments in the European Union and accession countries: Results of a systematic literature review

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Abstract

A major issue for public health policy is to reduce the poverty and catastrophic effects of out-of-pocket payments. This paper reviews empirical studies that analyze the financial burden of out-of-pocket payments and factors that are associated with this burden for households in the EU and accession countries. The method of systematic literature review is applied. Poverty effects appear to be independent of geographical area. Catastrophic healthcare expenditure ranges from a bit less than 0.05% to nearly 4%, and the impoverishment due to out-of-pocket payments is also up to 4%. Analyses carried out in single countries reveal that living in a household with a pensioner contributes most to high payments for health care. The results support calls for health policy to prevent the burden of out-of-pocket payments, especially for pharmaceutical expenditure. Special attention should be paid to risk groups such as pensioners, female headed households and low income households.

Key words: catastrophic effects, European Union, out-of-pocket payments, poverty

Introduction

One of the fundamental goals of the public healthcare systems in Europe is to protect people from the negative financial consequences of illness by ensuring affordable and equitable health care [1]. At the same time, to ensure the financial sustainability of their healthcare system, many countries in Europe have introduced or increased patient charges over the past decade [2, 3]. The issue underlying the increase of out-of-pocket payments (OPPs) is the shift of healthcare costs to the patients and their families. OPPs may pose a risk to the affordability and equity of the healthcare services [4]. Three forms of OPPs can be distinguished: (1) direct OPPs for services and goods, including consultation fees and the purchase of pharmaceuticals that are usually obtained in the private sector and are outside the statutory benefit package;

(2) user charges (cost sharing) applied to services and goods included in the statutory benefit package; (3) informal payments or “under-the-table” payments, which can take the form of cash or in-kind gifts [5, 6]. OPPs are made at the point of service use and they are distinctive from health insurance premiums paid by the citizens.

The idea behind measuring the impact of OPPs on the household budget is that they are not regarded as equivalent to subsistence expenditures such as food and shelter [7]. Instead, OPPs do not always contribute to the overall wellbeing of a household and might have a negative impact on the household's ability to pay. Two main approaches for measuring the financial burden of OPPs exist. When the household expenditure on health care exceeds a certain fraction of the household income or consumption, it is said that the household experiences ‘catastrophic’ expenditure. When the household health-

care spending pushes the households below a poverty line, it is said that the household experience 'impoverishing' effects [8]. Both methods are extensively applied in the literature focused on developing countries [9–11].

At the European level, there are few studies that have focused on this issue. Until now, no review of the evidence on the financial burden of OPPs in Europe exists. Such review would however be important for adding a European value to the affordability and equity of healthcare services, and for identifying the capacity of the European households to pay for health care. This paper addresses this gap in the literature. In particular, the paper aims to systematically review the recent empirical evidence on the financial burden (poverty and catastrophic effects) of OPPs in the EU and accession countries and thus, to establish a base for future comparative studies. This is a first effort to present a systematic compilation of publications related to this topic.

Background

OPPs are one of the key sources of healthcare financing throughout the EU and accession countries [12]. Although in the period 2000–2010, the share of OPPs in the total health expenditure has only slightly increased (+0.3%) on average in EU, there are notable changes between countries. For instance, a large decrease in OPPs is found in Poland (–7.9%), Italy (–6.7%) and Lithuania (–4.7%) whereas large increases are found in Slovakia (+15.3%), Bulgaria (+6.4%) and Cyprus (+5.9%) [2]. Overall, the share of OPPs in the total health expenditure varies considerably across countries. In 2010, this share was highest in Cyprus (49%), Bulgaria (43%) and Greece (38%), and it was lowest in the Netherlands (6%), France (7%) and the UK (9%) [2]. Less wealthy countries rely more on OPPs than wealthier countries.

In order to analyze the financial burden that OPPs create for households, it is necessary to define welfare measures. The literature on OPPs defines three general indicators of household welfare: income, consumption and expenditure. Consumption and expenditure are often used interchangeably because their levels are virtually similar [8]. They both capture household welfare in terms of the household's ability to meet its basic needs. Income however can substantially differ from consumption and expenditure. Household financing mechanisms like savings, selling assets, taking credit or receiving transfers from family and friends can lead to a higher consumption level than their income would allow [13]. Also, consumption accounts for long-term assets, which are not captured by the income indicator [8, 11]. In countries where informalities prevail, the use of income as a welfare indicator is also questioned since a large part of income might remain unreported or might be in a non-monetary form (e.g. agricultural products) [8, 13]. Nevertheless, the use of income is preferred when distinguishing between income sources. It is also a useful indicator when the ability to pay should be taken into account because household financing strategies such as selling assets and taking credit, which indicate inability to pay, are not included [8].

In addition to the welfare indicator chosen, it is also necessary to define the approach for measuring the financial burden of OPPs. As mentioned earlier, there are two main approaches: catastrophic expenditure and impoverishing effects. Based on the catastrophic expenditure approach, the fraction of the household income spent on health care or the fraction of consumption related to health care is compared to a predefined threshold. The threshold applied ranges from more than 5% to more than 40% depending on the study setting and objectives [8, 11]. If this threshold is exceeded, catastrophic healthcare spending is registered. According to the impoverishing effects approach, household income or consumption after subtracting the healthcare spending, is compared to a predefined poverty line. When the household falls below this poverty line, an impoverishing effect of OPPs is registered. The literature defines relative and absolute poverty lines. A relative poverty line is set at a certain percentage of the mean income or consumption, and therefore depends on the overall income or consumption in a country. The absolute poverty lines are generally defined based on estimates of the costs of basic food needs. Establishing poverty lines should be in accordance with social norms or the common understanding of what represents the minimum. Overall, the definition of thresholds in both approaches is somewhat arbitrary. Most importantly, changes in the threshold lead to very different estimates [8].

Research methods

This study has the form of a systematic literature review of empirical studies on the financial burden of OPPs in the EU and associated countries. The review is carried out in April–June 2013. The primary purpose is to appraise, select, identify and synthesize existing evidence on this topic. To identify relevant publications, the following combination of keywords (search terms) is used: EUROPEAN UNION and PATIENT PAYMENT and POVERTY. Moreover synonyms of the keywords are added and differences in spelling are considered. The following overall chain of keywords is used in the search:

[EUROPEAN UNION or EU or EUROPE or AUSTRIA or BELGIUM or BULGARIA or CYPRUS or Czech REPUBLIC or DENMARK or ENGLAND or ESTONIA or FINLAND or FRANCE or GERMANY or GREECE or HUNGARY or IRELAND or ITALY or LATVIA or LITHUANIA or LUXEMBOURG or MALTA or THE NETHERLANDS or POLAND or PORTUGAL or ROMANIA or SLOVAKIA or SLOVENIA or SPAIN or SWEDEN or UNITED KINGDOM] and [PATIENT PAYMENT or CO-PAYMENT or COPAYMENT or CO-INSURANCE or COINSURANCE or COST SHARING or DEDUCTIBLE or INFORMAL PAYMENT or OUT-OF-POCKET PAYMENT or USER FEE or USER CHARGE] and [POVERTY or EXGUILTY or IMPOVERISHMENT or MEAGERNESS or PAUPERISATION or POORNES or CATASTROPHIC or IMPOVERISHING]

The following databases are searched: Embase, Pubmed and Web of Science. Inclusion criteria are related

to the nature and language of publications: only empirical studies published in English language are reviewed. The date of publication is limited to papers published since 2000. To avoid information bias, only peer-reviewed papers are used. In addition, relevance criteria that concern the content of the publications are established. We only include empirical studies that analyze poverty and catastrophic effects caused by OPPs for pharmaceuticals, medical devices, dental, mental preventative, long-term care, emergency care as well as inpatient and outpatient care. Studies published before 2000, as well as non-English and non-peer-reviewed studies are excluded from the review. We also exclude studies that analyze OPPs in general, as well as studies that discuss or describe poverty and catastrophic effects caused by increased OPPs without providing empirical data. Studies that analyze increases in payments for health insurance to reimburse service provision are also excluded.

The methodological and epistemological quality of research in this field is expected to be heterogeneous due to the different theoretical approaches that exist in quantifying OPPs and poverty in general. Three main aspects: data collection, data analysis and research design are analyzed in order to exclude studies where an inappropriate or poor methodology is used. As study designs considerably differ from each other, it is not feasible to carry out a quantitative analysis using the study results. Based on the data categorization, the results of the review are summarized in the form of tables.

Results

The systematic literature review identified 121 publications. After reviewing titles and abstracts, eleven relevant publications are selected for the analysis [14–24]. A summary of the publications can be found in the appendix.

The scope of the studies ranges from looking at a single country or sub-region to a multi-country analysis. Some studies measure the financial burden of OPPs caused by policy reforms. In the Czech Republic [18], relatively minor increases in the financial burden of OPPs have been registered after the implementation of user fees for publicly funded healthcare services. Another study reports poverty effects after reforms of the primary healthcare system in the western Balkan [15]. In Turkey, poverty effects are registered after the introduction of universal coverage in 2008 as part of the Health Transformation Program [24]. In Estonia, a drastic increase of the burden of OPPs during the transition period is reported [17, 20]. Some studies [14, 16, 19, 22] attempt to determine the strength of the financial burden or barriers to access. While in Latvia [22] the main interest is on the effect of the poorly defined public insurance schemes and the high share of OPPs in the total health expenditure, in Poland [19], the main interest is to analyze the poverty effects caused by the pharmaceuticals. Two studies [21, 23] apply catastrophic expenditure measurements to compare health system characteristics. Both studies include data on catastrophic expenditure from 21 European countries.

The majority of the data come from household budget surveys. In some studies, specifically designed questionnaires are used [14, 15, 19]. All studies use expenditure or consumption as indicators. Some studies measure OPPs per household member [14–16, 18, 19, 24] while other studies use a mix of household members [17] or household level data [20]. Several measuring methods are used in the studies either alone or in a combination.

The individual and household characteristics most often associated with financial burden of OPPs include: being a pensioner, being in the lowest income group, living in a female headed households and households with more than one child. Other reasons for experiencing a high burden of OPPs are a low education level and being unemployed or out of the labor force.

Table I compares all studies on catastrophic healthcare expenditures that are identified in the review. The table presents the year of the study, survey type, sample sizes, approximated average OPPs per household per year, catastrophic expenditure threshold, as well as the share of the sample that exceeds the catastrophic expenditure threshold. As indicated in the table, the sample size ranges from about 1000 to more than 25000 individuals. The highest OPPs per household per year are found in the Czech Republic (€ 280.80 in 2009) and the lowest in the Scandinavian countries and Turkey. However, the Czech Republic has very low rates of catastrophic OPPs.

Thresholds for measuring catastrophic expenditure vary from 5% to up to 40%. Studies looking at a single country sometimes use lower thresholds to better capture the country effects. A lower threshold is also applied when the catastrophic effects of a specific OPPs component is studied (e.g. OPPs for pharmaceuticals in Poland). At the 40% threshold, the catastrophic expenditure ranges from a bit less than 0.05% (e.g. in Czech Republic, Luxembourg and Slovakia) to up to 3.7% in Latvia in 2005.

It should be noted that the results presented in Table I are difficult to compare due to differences in the year and design of the studies. Therefore, we look more closely at four studies that provide overall comparable results [16, 17, 22, 24]. These studies analyze the catastrophic expenditure in population quintiles by measuring the effects especially for the poorest quintile. The studies also make a distinction between different healthcare components. As indicated by these studies, Estonia (threshold 20%) and Latvia (threshold 40%) show a high disparity between the rich and poor quintiles in favor for rich quintiles, while France and Turkey show equal proportions of catastrophic expenditures across quintiles. Also, Estonia, Latvia and Turkey show a decrease in catastrophic healthcare expenditures across quintiles (from poor to rich) in case of pharmaceutical products and outpatient services. France shows an equal distribution across quintiles in all healthcare components. It is important to mention that Estonia and Latvia show a progressive distribution of catastrophic payments over income quintiles.

The majority of papers also look at the impoverishing effects of OPPs, i.e. the share of households that fall below a given poverty line after subtracting the OPPs [15–17, 19, 22, 24]. Moreover, three studies [15, 17, 19]

Country	Reference	Year of the study	Data source	Sample size	Average OPPs per household per year (in EUR)	Threshold	Share of the sample above the threshold [%]
Austria	[21, 23]	1999/2000	Household Budget Survey	7086	not available	40%	0.2
Belgium	[21, 23]	1997/1998	Household Budget Survey	2212	not available	40%	0.1
Bulgaria	[21, 23]	1995 1997 2000	Integrated Household Survey	5701 2462 2618	not available	40%	0.9 2.4 2.2
Czech Re-public	[21, 23]	1999	Household Budget Survey	2675	not available	40%	0.0*
Czech Re-public	[6]	2007 2008 2009	Household Budget Survey	3000 3000 3000	213.60 277.20 280.80	20%	0.0* 0.2 0.1
Denmark	[21, 23]	1997	Household Budget Survey	2675		40%	0.1
Estonia	[4]	1995 2001 2002	Household Budget Survey	2816 5854 5499	44.44 106.8 116.4	40%	0.3 1.5 1.6
Estonia	[4]	1995 2001 2002	Household Budget Survey	2816 5854 5499	44.44 106.8 116.4	20%	3.1 5.0 0.3
Estonia	[7]	2000 2001 2002 2003 2004 2005 2006 2007	Household Budget Survey		44.44 44.44 49.92 61.44 72.96 74.49 114.43 120.58	20%	2.4 2.6 3.3 4.0 5.2 4.3 6.8 6.2
Finland	[21, 23]	1998	Consumption Expenditure Survey	4348		40%	0.4
France	[3]	1995 2001 2006	Family Budget Survey	9634 10305 10240	41.60 28.70 19.20	20%	4.0 3.0 2.0
France	[3]	1995 2001 2006	Family Budget Survey	9634 10305 10240	41.60 28.70 19.20	40%	2.0 1.5 0.6
Germany	[21, 23]	1993	Income and Consumption Survey	8094	not available	40%	0.0*
Greece	[21, 23]	1998	Household Expenditure Survey	10191	not available	40%	2.2
Hungary	[21, 23]	1993	Household Budget Survey	8094	57.60	40%	0.2
Iceland	[21, 23]	1995	Household Budget Survey	1352	not available	40%	0.4
Latvia	[21, 23]	1997/1998	Household Budget Survey	7648	not available	40%	2.8
Lithuania	[21, 23]	1999	National Household Budget Survey		not available	40%	1.3
Luxembourg	[21, 23]	1998	Enquête budget des ménages	8205	not available	40%	0.0*
Montenegro	[2]	2004	(ISSP) Household Survey	8205	not available	25%	0.4
Poland	[21, 23]	1993	Household Budget Survey	16051	not available	40%	1.6

Poland	[6]	2000 2003 2005 2007 2009	Social Diagnosis questionnaire-based study	3005 12381	not available	10%	9.3 11.6 9.7 11.8 13.5
Portugal	[21, 23]	1994/1995	Income and Expenditure Survey	10450	not available	40%	2.7
Portugal	[21, 23]	1990	Income and Expenditure Survey	12403	not available	40%	2.5
Romania	[21, 23]	1994	Integrated Household Survey	2219	not available	40%	0.1
Slovakia	[21, 23]	1993	Family expenditure Survey	2129	not available	40%	0.0*
Slovenia	[21, 23]	1997/1998	Household Budget Survey	2577	not available	40%	0.1
Spain	[21, 23]	1996	Encuesta Continua de Hogares	3104	not available	40%	0.5
Sweden	[21, 23]	1996	Household Expenditure Survey	1103	not available	40%	0.2
Turkey	[11]	2003 2006 2009	Houshold Budget Surveys	25920 8640 12600	21.65 23.41 23.79	40%	0.8 0.6 0.5
United Kingdom	[21, 23]	1999/2000	Family Expenditure Survey	7074	not available	40%	0.0*

*A bit less than 0.05%.

Table I. Catastrophic OPPs expenditure in the EU and accession countries.

analyze the severity of poverty looking at those households below the poverty line that become even more poor because of healthcare payments. The percentage of households dropping below the poverty line ranges from 0.2% in France in 2006 up to 4.2% in Poland in 2009. Bearing in mind that the Polish study solely measures impoverishment caused by OPPs for pharmaceutical, this is a rather large effect.

Discussion

As shown by the results of our review, the financial burden of OPPs is felt in most EU and accession countries but that countries differ in the extent of the burden. The percentage of households incurring catastrophic payments ranges from less than 0.1% to about 4%. The highest percentage of households incurring impoverishing effects is also close to 4%. The payment burden occurs in both insurance-based and tax-based health systems but more often in less wealthy countries. For example, the financial burden of OPPs is found to be highest in Latvia where the evidence indicates that in 2005, 33200 households were prevented from seeking care or experienced catastrophic payments. Currently many EU countries consider introducing or increasing OPP as a source of health care financing. These policy interventions shift healthcare costs to the patients and may further intensify

the levels of the impoverishing and catastrophic effects of OPPs reported in the publications.

Nevertheless, the incidences of catastrophic and impoverishing effects of OPPs in the EU and accession countries are generally lower compared to developing countries in which no prepayment healthcare mechanisms exist. Thus, although in some EU and accession countries, OPPs impose a greater burden on household finances than in others, all these countries are fairly successful in ensuring access to health care and avoiding major catastrophic or impoverishing effects of OPPs. Still, this positive view should not be a reason for policy-makers in Europe to neglect the problem. Even though the level of impoverishing and catastrophic effects of OPPs is relatively low at present, if these effects continue to persist they may further deepen the level of impoverishment. Moreover, OPPs measured in surveys do not always capture the informal patient payments. This suggests that the financial burden of OPPs is probably higher than that measured in the studies.

The focus of most studies that we reviewed is limited to the analyses of the magnitude of the financial burden caused by OPPs. Coping mechanisms, such as borrowing money to cover healthcare expenses, are not always analyzed. It is also not clear whether the catastrophic or impoverishing effects are incurred in only one year or whether these are repeated year after year for a house-

hold. The duration over which catastrophic or impoverishing effects are felt by a household may be more important than the incidence of the effects in the population.

Some studies provide benchmarks to compare the magnitude and impact of OPPs on income/consumption quintiles. In lower income countries, particularly the population with the lowest-income is most at risk to incur high OPPs payments. Financial protection increases from the highest to the poorest population quintile in Latvia and Estonia, generally speaking for lower levels of financial protection towards low income households. However, for France and Turkey, the evidence indicates that the better-off individuals tend to exceed the threshold as well. This can partly be explained because in wealthier countries, rich households tend to consume more healthcare services and goods.

We also find in the review that in the EU and accession countries, well established financial protection mechanisms seem to exist for two healthcare components: inpatient and outpatient care. This is probably because patients in the EU can more easily access publicly funded inpatient and outpatient services at low cost. The largest parts of OPPs for patients, however, are pharmaceutical expenditures such as medications. Especially for pharmaceutical expenditure, the data reviewed demonstrate that direct and indirect OPPs are substantial in some EU countries, like Poland, and that catastrophic payments related to pharmaceuticals occur in every population quintile.

By looking at studies that analyze factors that increase the likelihood for poorly protected households, it is difficult to compare the outcomes, as the studies do not use an identical set of factors. Still, the studies suggest that households mostly impacted by high OPPs are single-pensioner households or households with at least one pensioner and female-headed households.

It should be noted however, that our review includes health systems that are very diverse and have very different systems of OPPs. In addition, there are different health indicators used in household budget surveys. Countries with low OPPs might need another measurement tool than the ones currently used to identify poverty gaps. The results also show that thresholds for measuring catastrophic and impoverishing effects of OPPs vary greatly between the studies. Comparable studies in the EU on catastrophic and impoverishing effects of OPPs have argued that in the EU, the threshold for measuring household financial burden should be set lower than 40% because EU countries have highly developed healthcare systems. Our review lists the overall thresholds that are used in the studies in the EU and accession countries concluding that a lower threshold to measure OPPs should be applied, as this better captures poverty effects in high income countries.

As indicated by some publications included in our review, OPPs may negatively impact healthcare-seeking behavior, leading to foregoing health services or hospitalizations. This effect may increase the longer the catastrophic or impoverishing effects remain. Several coping mechanisms are identified in the literature, for instance

borrowing money, selling assets, reallocating household spending or diversifying activities to generate income. In order to alleviate the high burden of OPPs, policies on financial protection should be incorporated in the general health policies to support patients who cannot afford to pay for health care. Current tax based or social insurance systems in the EU are not fully protecting citizens from these excessive payments. In most countries in the EU, the demand for healthcare is in line with needs. However, improving financial support for healthcare is likely to contribute to improving population health.

Our systematic literature review has several limitations and should be viewed as a base line effort to present a systematic compilation of relevant publications. We include only papers published in English and therefore, we might have missed relevant publications in national journals. Also, the review is carried out in April–June 2013, which means that we might have missed relevant recent publications (e.g. [25]). Another problem that occurs is related to the comparability of the household survey data used in the studies. Specifically, the recall period varies across the studies. Surveys that apply a long recall period might be subject to misreporting due to the respondents' inability to recall the exact OPPs. Also, studies use very different constructs for measuring the financial burden of OPPs and very different study designs. This means that the results are strongly dependent on the survey instrument. Standardization of the survey designs would facilitate cross-country comparisons but could also discourage improvements of the survey designs.

Conclusion and recommendation

As suggested by our review, OPPs place a financial burden (poverty and catastrophic effects) on households throughout the EU and accession countries. Future cost shifting may further aggravate this social problem. The level of catastrophic payments and impoverishing effects varies considerably across the countries and is difficult to compare due to differences in the study designs. Nevertheless, some trends are observed. In particular, the highest costs are OPPs for pharmaceuticals. Factors usually associated with the financial burden of OPPs include: living in a poor household, household with at least one pensioner and female headed households. Overall, the results support health policy changes towards the alleviation of poverty caused by OPPs. This view is also supported by the Health Strategy 2020 of the WHO to eradicate poverty by 2020 [26, 27]. It remains unclear however what changes in the healthcare system would be most effective in reducing the burden of OPPs as the countries have very different healthcare systems and very different types of OPPs.

Our review identified only few empirical studies. It appears that the burden of OPPs in the EU and accession countries is not well studied. More cross-country evaluation studies are needed as well as in-depth qualitative analysis with different healthcare stakeholders. In particular, the investigation of the health sector components related to pharmaceuticals can further contribute to our

understanding of OPPs and their impact on healthcare expenditures. Future studies could also focus on challenging questions such as: How persistent are these poverty effects for individual households? What are the effects of specific healthcare reforms on poverty? Can these effects be foreseen before the reforms are implemented and can they be diminished by amending the reforms implementation? Are the current methods applied to study poverty and catastrophic effects of OOPs, powerful enough to capture details relevant to policy? What thresholds and welfare indicators are useful for policy-making in the EU and associated countries? How to standardize the methodology across the region? Future studies should also consider a long-term perspective and focus on the duration of the poverty effects of OPPs rather than just the incidence.

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Appendix. Detailed description of the publications included in the review.

Publication	Context of the study	Survey/indicator type	Measurement type	Variables used	Main reason of high burden of OPPs
Atanasova E., Pavlova M., Moutafova E., Rachel B., Groot W., <i>Out-of-pocket payments for health care services in Bulgaria: financial burden and barrier to access</i> , "European Journal of Public Health" 2013; 23(6): 916–922.	Public and private sector has a complex system of user charges, which are a major source of finance. Increasing patient charge like e.g. for choosing a physician team results in higher payments. High level of informal payments.	Nationally representative survey, standardized questionnaire Data on health expenditure and health care use Sampling unit: individual household member data	Regression analysis (logistic regression for binary dependent variables and linear regression for continuous dependent variables)	Dependent variables: formal payments; informal payments; outpatient visits; hospitalizations; borrowing/taking loan/forego service Independent variables: expenditure quintiles, age, gender, education level, size residence place, self-reported health, chronic disease, social insurance, private insurance, income per member	Poor and rich seem to bear the same financial burden; low income group more often forego service owing to user charges. Inability to pay especially found in groups with self-reported poor health, people with chronic disease and low income households.
Bredenkamp C., Mendola M., Gragnolati M., <i>Catastrophic and impoverishing effects of health expenditure: new evidence from the Western Balkans</i> , "Health Policy and Planning" 2011; 26(4): 349–356.	Within sub-region, OPPs constitute a large share of health expenditure. In addition, major health reforms such as the introduction of a new primary healthcare model emphasizing family medicine. Restructuring of the delivery system of hospitals towards more primary and preventive care. Introduction of benefit packages.	Household survey data from the Institute for Strategic Studies and Living Standards Measurement Survey Data on household consumption/expenditure Sampling unit: household level data	Methods introduced by previous studies	Dependent variables: catastrophic expenditure, headcount, mean gap, mean positive gap, poverty headcounts, pre-payment headcount, post-payment headcount, poverty gaps, pre-payment poverty gap, post-payment poverty gap Independent variables: expenditure quintiles	Poor and rich household have similar percentage of high burden expenditure. Furthermore, the level of impoverishment is relatively low.
Dukhan Y., Korachais C., Xu K., Sakseena P., Mathonnat, J., <i>Financial burden of health payments in France: 1995–2006</i> , World Health Organization, Geneva 2010.	Incomplete public insurance system for physician services, drugs and other medical goods. Households contribute to 7.6% through OPPs; Variance in specific payments such as the 'ticket modérateur' and 'forfeit hospitalier'.	Family Budget Survey Indicator type: health expenditure and consumption Sampling unit: household level data	Methods introduced by previous studies. Impoverishment effects measuring poverty headcounts per year Logistic regression	Dependent variables: high burden health expenditure, catastrophic expenditure Independent variables: expenditure quintiles, male head, household size, private Insurance premiums, senior, child	Mostly affected groups regarding high burden payments: female headed households, number of senior members aged 65 and above, higher education, richest quintile, living in the south west region in 2006 and Middle East in 2001. Voluntary health insurance reduces the incidence of high burden expenditure significantly.
Habicht J., Xu K., Couffinhal A., Kutzin J., <i>Detecting changes in financial protection: creating evidence for policy in Estonia</i> , "Health Policy and Planning" 2006; 21(6): 421–431.	Although 94% of the population is covered by public insurance, OPPs have been increasing rapidly since the mid-nineties.	Survey type: EMOR 1996; Statistical Office of Estonia in 2002, 2003 Indicator type: health expenditure and consumption Sampling unit: household level data and household member	Methods introduced by previous studies. Impoverishment effects by measuring poverty headcounts per year Multiple-logistic regression to better understand who is most affected by large OPPs	Dependent variables: high OPP expenditure (20% of CTP), impoverishment. Independent variables: income quintiles, household location, with members above 65 years old, with members under 16 years old, household size, household head, complete primary but not secondary school, above secondary school, household head (employed)	Catastrophic payments have increased from 1995–2006. High health payments and impoverishment effects are more found in the poorest quintile. Factors contributing to high health payments: household income, family structure (esp. elderly 65+ family members), characteristics of the household.
Krutilova V., Yaya S., <i>Unexpected impact of changes in out-of-pocket payments for healthcare on Czech household budgets</i> , "Health Policy" 2012; 107(2–3): 276–288.	Although the Czech Republic has relatively low private spending, additional user (patient) fees have been implemented since 2008. Since December 2011, the patient fee has increased to 100 CZK per stay	Household budget survey Indicator type: expenditure and consumption Sampling unit: household level data	Methods introduced by previous studies. Regression analysis and generalized linear model.	Dependent variables -extreme catastrophic payments < 5% Independent variables: Income deciles, Age > 30, 31–45, 46–55, 56–65, < 66, net income, female headed household, household with 1, 2 or more children, individual household, no children, low- secondary or higher education, city, town, village.	Households of pensioners, households without children and one-person households, women, households with a higher level of education are in a higher risk to face extreme payments.

Luczak J., Garcia-Gomez P., <i>Financial burden of drug expenditures in Poland</i> , "Health Policy" 2012; 105(2-3): 256-264.	To elaborate whether there is lack of financial protection that is concentrated among the poor To illustrate how many households have problems with drug affordability	"Social Diagnosis" questionnaire-based study available at www.diagnoza.com Indicator type: expenditure Sampling unit: household level data	Methods introduced by previous studies. Poverty line equals to 60% of median equivalent income.	Dependent variables: catastrophic pharmaceutical expenditure, headcount, mean gap, mean positive gap, poverty headcounts, pre-payment headcount, post-payment headcount, poverty gaps, pre-payment poverty gap, post-payment poverty gap. Independent variables: pensioners, chronically ill	Pharmaceutical expenditures are a severe financial burden. Catastrophic payments concentrated among worse off, pensioners and chronically ill.
Vork A., Habicht J., Xu K., Kutzin J., <i>Income related inequality in health care financing and utilization in Estonia since 2000</i> . WHO Regional Office for Europe, Copenhagen 2010.	Although 94% of population is covered by public insurance, OPPs have been increasing rapidly since the mid-nineties, almost threefold from 2000-2007.	Household Budget Surveys Indicator type: expenditure Sampling unit: household member	Methods introduced by Statistics Estonia and own calculations.	Dependent variables: catastrophic expenditure < 20% Independent variables: income quintiles, three-generation household, couple with three or more children, couple with two or more children, couple with one child, single parent with two or more children, single parent with one child, couple- at least one of working age, couple- pensioners, single of working age, pensioner	Mainly low income countries spend large share of their income on OPPs. High risk for impoverishment due to OPPs are single pensioners, couple- pensioners, single parent with one child and single of working age. Cost of pharmaceutical most contributing factor to high OPPs.
Xu K., Evans D., Kawabata K., Zeramdini R., Klavus J., Murray C., <i>Household catastrophic health expenditure: a multicountry analysis</i> , "The Lancet" 2003; 362: 111-117.	Provision of information and comparison of catastrophic health expenditure to determine conditions under which catastrophic health expenditures occur more frequently.	Data from 59 household budget surveys of which 21 are from relevant European countries Indicator type: expenditure Sampling unit: various	Methods introduced by previous studies.	Dependent variables: catastrophic expenditure < 40%	Catastrophic payments occur mainly in low and middle income countries, in countries that have failing social mechanisms, health service access and utilization and absence of risk-pooling mechanisms.
Xu K., Saksena P., Jowett G., Kutzin J., Rurane A., <i>Access to health care and the financial burden of out-of-pocket health payments in Latvia</i> , World Health Organization, Geneva 2009.	High share of OPPs in total health expenditure. No clearly defined public health insurance schemes. All services require cost sharing up to a certain ceiling.	Unknown	Own method and calculations	Dependent variables: catastrophic payments < 40%, high burden expenditure 20-40%, impoverishment Independent variables: income quintiles, female	Largely driven by spending on drugs, especially low income groups, mainly due to difficulties in identifying the poor. Households with members 65+, female headed households, households with unemployed person or lower education, rural households.
Xu K., Evans D.B., Carrin G., Aguilar-Rivera A.M., Musgrove P., Evans T., <i>Protecting households from catastrophic health spending</i> , "Health Affairs" 2007; 26(4): 972-983.	Provision of information and comparison of catastrophic health expenditure to determine conditions under which catastrophic health expenditures occur more frequent.	Data from 168 household budget surveys of which 21 are from EU and accession countries Indicator type: expenditure Sampling unit: various.	Methods introduced by previous studies.	Dependent variables: catastrophic expenditure < 40%, uncertainty intervals	Catastrophic payments occur mainly in low and middle income countries, in countries that have failing social mechanisms, health service access and utilization and absence of risk-pooling mechanisms.
Yardim M.S., Cilingiroglu N., Yardim N., <i>Financial protection in health in Turkey: the effects of the Health Transformation Programme</i> , "Health Policy and Planning" 2014; 29(2): 177-192.	OPP's made up approx. one fifth of health financing. Now universal coverage was introduced. Evaluation of financial protection during the health reform period 2003-2009.	Survey type: Turkish Household Budget Survey Indicator type: expenditure Sampling unit: household level	Methods introduced by previous studies.	Dependent variables: catastrophic expenditure, impoverishment Independent variables: expenditure quintiles, health insurance schemes (public, private, Green Card, Non-insured)	Financial protection seems to be similar across income quintiles. No regression analysis has been carried out.